

NPAG DATA: *MYLLOCERUS UNDATUS* AN ASIAN GREY WEEVIL

Draft - November 4, 2000

TAXONOMY:

Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Curculionidae

Full Name: *Myllocerus undatus* Marshall

US DETECTION DATA AND/OR DISTRIBUTION MAP:

Initial Detection in US:

Location: Broward County, Florida
Date: 1995
Host: (?) Host
Collector: (?), Division of Plant Industry
Florida Department of Agriculture and Consumer Services
Gainesville, FL 32614-7100
Identifier: Dr. C. W. O'Brien (Confirming Identifier), Department of Entomology,
Florida A & M University
Iden. Date: (?) October, 2000 by C. W. O'Brien

Subsequent Detections in US:

Location: Broward County, Florida (Fort Lauderdale Area ?)
Date: 2000 (probably several dates in October)
Host: Various hosts (See *Hosts*)
Collector: Inspectors (unnamed), Division of Plant Industry
Florida Department of Agriculture and Consumer Services
Gainesville, FL 32614-7100
Identifier: Dr. C. W. O'Brien, Department of Entomology,
Florida A & M University
Iden. Date: October, 2000 by C. W. O'Brien (Thomas, 2000; 30Oct00 teleconference)

Apparently several detections in various localities were made in October 2000. Nine localities in Broward County and one locality (Boca Raton) in Palm Beach County are infested. Therefore the range is approximately 26 miles north to south and 9 miles east to west (Thomas, 2000; 30Oct00 teleconference).

QUARANTINES:

No information on a specific quarantine was found; however, weevils in the Genus *Myllocerus* are considered pests (Hill, 1987). Several species in the Genus *Myllocerus* are significant pests (Butani, 1979; Hill, 1987). Therefore, although few references exist on this weevil, this weevil may be considered a pest of quarantine significance.

LIFE HISTORY:

A typical life cycle for a weevil is the following:

Egg → Larva → Pupa → Adult

Because specific information on *Myllocerus undatus* is limited, information on species in the Genus *Myllocerus* is below.

Note: For the cotton grey weevil, *Myllocerus undecimpustulatus*, the pest is active from April to November and passes winter in the adult stage, hidden in debris (Atwal, 1976). Because *Myllocerus undatus* occurs in a climatic zone without great variation, a period of inactivity may not occur.

For *Myllocerus undecimpustulatus*, the life cycle is completed in 6 to 8 weeks during the active period (Atwal, 1976). *Myllocerus undatus* probably has a fairly short life cycle.

Egg Stage: For *Myllocerus undecimpustulatus*, the female lays on an average 360 eggs over a period of 24 days. The eggs hatch in three to five days (Atwal, 1976).

Larval Stage: The grubs of *Myllocerus* species feed on rootlets (Butani, 1979).

For *Myllocerus undecimpustulatus*, the young grubs feed on the roots of cotton and other plants. The grubs complete their development in one to two months (Atwal, 1976).

Pupal Stage: For *Myllocerus undecimpustulatus*, pupation occurs in the soil inside earthen cells and takes about one week (Atwal, 1976).

Adult Stage: The adult weevils of *Myllocerus* species feed on leaves, nibbling the leaves from the margins and eating away small patches of leaf lamina (Butani, 1979).

For *Mylocerus undecimpustulatus*, the adults live for 8 to 11 days in the summer and four to five months in the winter (Atwal, 1976).

Description: According to Thomas (2000), the adult weevil is superficially similar to the native *Artipus floridanus* in size, at 7-8 mm in length, and in coloration, gerenerally whitish-grey. However, *Mylocerus undatus* differs in many details; the most conspicuous differences are the dark mottling of the upper surface and the yellowish coloration of the head. All the femora of *Mylocerus undatus* are spined; in contrast, the femora of *Artipus floridanus* are *not* spined.

HOSTS:

According to Thomas (2000; 31Oct00 teleconference), a number of species seem to be host plants:

Scientific Name	Common Name	Reference
<i>Chrysobalanus icaco</i>	Coco palm	Thomas, 2000
<i>Dyopsis lutescens</i>	Areca palms	Thomas, 2000
<i>Euphoria longana</i>	Longan	Thomas, 2000
<i>Hibiscus rosa-sinensis</i>	Hibiscus	Thomas, 2000
<i>Lagerstroemia indica</i>	Crepe-myrtle	Thomas, 2000
<i>Litchi chinensis</i>	Lychee	Thomas, 2000
<i>Mammea sapota</i>	Mamey	Thomas, 2000
<i>Psophocarpus tetragonolobus</i>	Winged bean	Shanthichandra <i>et al.</i> , 1990
<i>Syzygium paniculatum</i>	Australian bush-cherry	Thomas, 2000
<i>Terminalia catappa</i>	Tropical almond	Thomas, 2000

This is understandable, because species in the Genus *Mylocerus* are polyphagous (Hill, 1987), that is, capable of feeding on a number of host plants. According to Butani (1979), the apple weevil, *Mylocerus discolor*, and the almond weevil, *Mylocerus laetivirens*, are polyphagus pests feeding on a variety of host plants. The grey weevil, *Mylocerus undecimpustulatus*, is also polyphagus; Pruthi and Batra (1960) list over twenty host plants of economic value; in addition, . weeds are host plants (Budhreja *et al.*, 1984).

DISTRIBUTION:

Asia: Apparently only Sri Lanka (Ramamurthy & Ghai, 1988; Shanthichandra *et al.*, 1990)
N. America: USA (FL)

DAMAGE WHERE ESTABLISHED:

General References: Without naming species, Hill (1987) stated that grey weevils, *Mylocherus* species, are among the “important pest species of weevils.”

In *Agricultural Pests of India and South-East Asia*, Atwal (1976) mentions *Mylocherus discolor* and *Mylocherus undecimpustulatus*; however, *Mylocherus undatus* is not mentioned.

In *Insects and Fruits*, Butani (1979) states that the almond weevil, *Mylocherus letivirens*, is a major pest; however, the apple weevil, *Mylocherus discolor*, and the grey weevil, *Mylocherus maculosus*, are minor pests. Butani (1979) does not mention *Mylocherus undatus*.

Specific Reference: A literature search on *Mylocherus undatus* found only a single reference, the report of occurrence on the winged bean, *Psophocarpus tetragonolobus*. This report gives no indication of the amount of damage, only stating that this weevil is “associated with winged bean” and damages the leaves; in addition, this report is a first report of damage on the winged bean (Shanthichandra *et al.*, 1990).

Infestations in Florida: The infestations in Florida indicate some economic damage; additional data is being sought to clarify the situation.

METHODS OF CONTROL:

Chemical Control: Apparently several insecticides are effective against adult weevils in the Genus *Mylocherus* (Budhraj *et al.*, 1984; Singh *et al.*, 1991; Sinha & Marwaha, 1995). However, the chemical treatment may be of little or no economic value because of (1) the prohibitive expense and (2) the limited period of vulnerability.

The larvae will probably be protected while feeding under the ground. However, methyl iodide is effective as a fumigant against insects (Waggoner *et al.*, 2000) and soil fumigation by methyl iodide appears to be as effective as soil fumigation by methyl bromide (Eayre *et al.*, 2000).

Several insecticides are effective against larvae in the soil (Hill, 1987).

Cultural Control: Cultural practices may be of value. Atwal (1976) reports that frequent hoeing and “interculture” (cultivation ?) disturb and kill the grubs of the cotton grey weevil, *Mylocherus undecimpustulatus* var. *maculosus*. Atwal (1976) also reports that the cotton grey weevil has a marked preference for arhar, *Cajanus cajan*, which can be sown as a trap crop.

Natural Enemies: The website of the CABI (CAB International) notes that *Steinina lunata* is a pathogen of *Mylocherus undecimpustulatus*. *Dinocampus mylocheri* Wilkinson (Braconidae) is a parasite of the adult weevils of *Mylocherus undecimpustulatus* (Pruthi & Batra, 1960).

Resistance: Resistance may be available. For *Mylocherus undecimpustulatus*, sorghum varieties vary in susceptibility (Kishore *et al.*, 1973) as do soybean varieties (Kundu, 1984) and cotton varieties (Menon, 1979). However, even for a single crop, incorporating resistance is a laborious and expensive procedure.

PERTINENT POINTS/PREDICTED CONSEQUENCES:

Native to Sri Lanka (Ceylon), *Mylocherus undatus* is adapted to the Equatorial Climatic Zone (Zone I). In this zone, typically, annual precipitation is high and the temperature does not vary because seasonal fluctuations are minor (Walter *et al.*, 1975). If *Mylocherus undatus* remains limited to this climatic zone or to the similar Tropical Summer-rainfall Climatic Zone (Zone II), the range of *Mylocherus undatus* in the United States will be limited. (See attached maps)

Presumably the movement of nursery stock with infested soil would transport viable larvae and pupae long distances.

Movement of weevils in infested plants may *not* be a major threat.

The single reference indicates that this weevil is not a significant pest in Sri Lanka. The reason for this insignificance may be one or more of the following:

- Effective biocontrol agents
- Inherent plant resistance

Because *Mylocherus undatus* has (1) a wide distribution in the United States, (2) numerous hosts, (3) a stage resistant to control (the larvae in the soil), the possibility of a biocontrol program should be examined.

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